



**FPL Energy.**

**Duane Arnold Energy Center**

FPL Energy Duane Arnold, LLC  
3277 DAEC Road  
Palo, Iowa 52324

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NG-06-0856  
10 CFR 50.55a

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

Duane Arnold Energy Center  
Docket 50-331  
License No. DPR-49

Response to Request for Additional Information Related to Relief Request NDE-R001

- References:
1. NG-06-0439, dated June 30, 2006, Fourth Ten-Year Inservice Inspection Plan
  2. Letter dated November 22, 2006, Request for Additional Information Related to Relief Request NDE-R001

The Duane Arnold Energy Center (DAEC) fourth ten-year inservice inspection (ISI) plan was submitted by letter dated June 30, 2006 (Reference 1). This plan included relief request NDE-R001.

By letter dated November 22, 2006, the Staff issued a request for additional information regarding relief request NDE-R001 (Reference 2). Additional information concerning NDE-R001 is provided in the enclosure to this letter.

This letter makes no new commitments nor changes to any existing commitments. If you have any questions, please contact Steve Catron at (319) 851-7234.

Gary Van Middlesworth  
Site Vice President, Duane Arnold Energy Center,  
FPL Energy Duane Arnold, LLC

Enclosure

cc: Administrator, Region III, USNRC  
Project Manager, DAEC, USNRC  
Senior Resident Inspector, DAEC, USNRC

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**Response to Request for Additional Information (RAI) Related to  
Relief Request No. NDE-R001 Examination and Testing of  
Class 1, 2, and 3 Snubbers**

As discussed in the RAI, FPL Energy Duane Arnold's relief request contained a table with comparisons between the Duane Arnold Energy Center (DAEC) Technical Requirements Manual (TRM) and Subsection ISTD of the ASME OM Code. As discussed in a conference call between the NRC staff and FPL Energy on October 12, 2006, the comparison table was not intended to denote any planned DAEC commitment to Subsection ISTD. Therefore, the NRC staff will compare the TRM requirements against the requirements specified in ASME/ANSI OM-1987, Part 4 (OM-4) with OMa-1988.

**NRC Question 1 Regarding Relief Request NDE-R001**

1. In Relief Request NDE-R001, under "Alternate Examination," the licensee states: "Visual examiners, who are qualified to the applicable rules of ASME Section XI, Article IWA-2300, "Qualification of Nondestructive Examination Personnel" will perform the examinations and tests of Class 1, 2, and 3 component snubbers." Please explain whether and how the VT-3 requirements, as described in IWA-2213, will be met by using IWA-2300 requirements.

**FPL Energy Duane Arnold Response to Question 1 Regarding Relief Request NDE-R001**

IWA-2213 will be used to identify the examination technique utilized and IWA-2300 will be used to qualify/certify the VT-3 examiners. FPL Energy Duane Arnold's NDE Written Practice for VT-3 examiner qualification meets the requirements of IWA-2300. IWA-2317: "Alternative Qualification of VT-3 Examination Personnel" will not be used.

**NRC Question 2 Regarding Relief Request NDE-R001**

2. ASME/ANSI OM-1987, Part 4 (OM-4) with OMa-1988, Paragraph 3.2.4.2 states: "Unacceptable snubber(s) shall be categorized into failure mode group(s). A test failure mode group(s) shall include all unacceptable snubbers that have a given failure mode, and all other snubbers subject to the same failure mode." Please explain whether and how the requirements of OM-4, Paragraph 3.2.4.2 will be met by using Technical Requirement Manual Section 3.7.2 and its bases.

**FPL Energy Duane Arnold Response to Question 2 Regarding Relief Request NDE-R001**

OM-1987, Part 4 with OMa-1988 describes five potential failure mode groups:

- Design / Manufacturing
- Application Induced
- Maintenance / Repair / Installation
- Isolated
- Unexplained

Although not defined as failure mode groups, the TRM does require sample expansions based on type of failure:

- TRM 3.7.2, Required Action A.1.1, requires to "Clearly establish and remedy the cause of the rejection for that snubber and for other snubbers that may be generically susceptible." This requirement would establish the failure mode group.
- TRM 3.7.2, Required Actions B.3, requires sample expansions based on snubber type of failure.
- TRM 3.7.2, Required Actions B.4.1 and B.4.2, addresses the testing of all snubbers found subject to the same manufacturing or design deficiency.
- TRM TSR 3.7.2.1 addresses actions required following a System Transient.
- TRM Bases, 3.7.2, further describes "Generically Susceptible Snubbers" as snubbers subject to the same environmental conditions.
- "Isolated" & "Unexplained Failures" are not specifically addressed in the TRM; however, if an isolated or unexplained failure were to occur, a random 5% sample plan expansion would be required for that type of snubber per Required Action B.3.

The differences between OM-4 and DAEC's TRM requirements concerning the establishment of "Failure Mode Groups" are concluded to be differences in terminology. Both the OM-4 Code and DAEC's TRM recognize the importance of determining why a snubber failed and the need to test other snubbers subject to a similar failure. The DAEC TRM is slightly more conservative in the fact that small failure mode groups still require a minimum 5% sample expansion. Therefore, the intent of establishing failure mode groups in OM-4, paragraph 3.2.4.2 is met by evaluating the snubber's failure and expanding the sample plan based on the type of failure.

#### NRC Question 3 Regarding Relief Request NDE-R001

3. OM-4, Paragraphs 1.5.6, "Snubber Maintenance or Repair," and 1.5.7, "Snubber Modification and Replacement," specify requirements for snubber repair and replacement. The submitted relief request and the TRM do not address the requirements of OM-4, Paragraphs 1.5.6, and 1.5.7. Please explain, whether and how these requirements will be met.

FPL Energy Duane Arnold Response to Question 3 Regarding Relief Request NDE-R001

Any repair/replacement activity on snubbers that are classified as Safety Related will be performed in accordance with IWA-4000. Maintenance activities on snubbers will be performed in accordance with the FPL Energy Duane Arnold Quality Assurance Topical Report (QATR). Any snubber that is corrected by maintenance or repaired/replaced will be functionally tested in accordance with the TRM and receive a Preservice VT-3 Examination after installation. Any modifications to a snubber will be subject to DAEC's Design Control process. Both DAEC's Section XI Repair / Replacement process and DAEC's Design Control Process evaluate changes that may affect a snubber's function. Therefore, the requirements of OM-4, paragraphs 1.5.6 and 1.5.7, are met.

NRC Question 4 Regarding Relief Request NDE-R001

4. ASME Section XI, IWF-5000 contains Section IWF-5400 "Repair/Replacement Activities." In the relief request, the licensee is silent regarding IWF-5400. IWF-5400 states: "Repair/replacement activities performed on snubbers shall be in accordance with IWA-4000. Snubbers installed, corrected or modified by repair/replacement activities shall be examined and tested in accordance with the applicable requirements of IWF-5200 prior to return to service." Please explain, whether and how these requirements will be met.

FPL Energy Duane Arnold Response to Question 4 Regarding Relief Request NDE-R001

FPL Energy Duane Arnold will apply the requirements of IWF-5400 "Repair/Replacement/Modification Activities" to all safety related snubbers. As stated above, any repair/replacement/modification activity will be performed on those safety related snubbers in accordance with IWA-4000 of the ASME Section XI code. All snubbers that have been repaired/replaced/modified will receive a Preservice VT-3 examination by personnel qualified and certified in accordance with IWA-2300.

Part 4 under OM-4 Paragraph 2.1.2 states that if snubbers are installed incorrectly or otherwise fail to meet the requirements of paragraph 2.1.1, those snubbers shall be corrected, repaired or replaced. The corrected, repaired, or replaced snubber shall be examined in accordance with paragraph 2.1.1 and shall meet the requirements therein.

OM-4 Paragraph 2.1.1 provides 5 criteria that need to be met:

- 1) no visible signs of damage or impaired operability as a result of storage handling or installation,
- 2) load rating, location, orientation, position setting, and configuration (attachments, extensions, etc.) are in accordance with design drawings and specifications,

- 3) adequate swing clearance is provided to allow snubber movement,
- 4) fluid is at the recommended level and is not leaking, and
- 5) structural connections such as pins, bearings, studs, fasteners, and other connecting hardware such as lock nuts, tabs, wire, and cotter pins are installed correctly.

FPL Energy Duane Arnold meets these requirements in the Surveillance Test Procedures NS992802, "Bergen Paterson Hydraulic Snubbers Visual Inspection Guidelines and Acceptance Criteria," and NS992806, "Lisega Hydraulic Snubbers Visual Inspection Guidelines and Acceptance Criteria." Both of these Surveillance Test Procedures include the following criteria:

- 1) No visible indications of damage or impaired OPERABILITY,
- 2) Attachments to the foundation or supporting structure are secure, and
- 3) Fasteners for the attachment of the snubber anchorage are secure.

Both Surveillance Procedures provide detailed inspection points for the following locations of each snubber:

- 1) Shaft
- 2) Bolting and fasteners
- 3) Front-end support (at pipe)
- 4) Rear-end support (at structural attachment)
- 5) Spherical Bearing
- 6) Overall (includes no indications of excessive fluid leakage)

These examinations are conducted by a Qualified and Certified VT-3 Examiner.